Transposition of the esophageal hiatus: a useful addition to Belsey repair of hiatus hernia

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Abstract

A novel method of hiatus hernia repair is presented in the course of which a 4–6 cm incision is made into tendinous portion of the diaphragm beginning at the esophagus hiatus and carried into the anterolateral direction. This allows the mobilized esophagus to be displaced anteriorly. A classic Belsey-procedure is done after which, not only the crura, but also part of the tendinous part of the diaphragm are united posteriorly making recurrence less likely.

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The common denominator of various hiatus hernia repairs is replacement of the herniated stomach into the peritoneal cavity. While most of the time, this maneuver may be accomplished easily, to keep the stomach permanently in the abdominal cavity and thus prevent recurrence, is another matter. Unfortunately, reoperations for hiatus hernia are common with all their undesirable clinical and economical consequences. Why do hiatus hernias recur? Often, the culprit is the uncorrected weakness of the posterior portion of the repair where the crura of the diaphragm are reapproximated. This is certainly not surprising if one considers the basic technical principle of any hernia operation: Do not rely exclusively on the suture of the muscle but also to utilize the fascia to close the path of the hernia and thus keep the chances of recurrence at minimum! This principle, however, is largely disregarded in present methods of hiatus hernia repair, which rely on restoring the esophageal hiatus by posterior approximation of the separated crura, structures devoid of a fascial support. To overcome this difficulty and to provide a reliable ‘in the round’ repair using fascia and fascia covered muscle, we do recommend the following modification of the traditional Belsey repair.

The patient is placed into the left lateral position and the pleural space is entered from the bed of the resected seventh rib. The esophagus is mobilized from the inferior pulmonary vein down to the hiatus. The herniated portion of the stomach is dissected free. The peritoneal cavity is entered and the sub-cardiac portion of the stomach is liberated from all surrounding tissues. The fatty tissue is left intact at the esophagogastric junction. A row of mattress sutures are now placed across the junction of the stomach to the lower esophagus approximately in 2/3 of its circumference, then tied. The anterior edge of the esophageal hiatus is then raised, a 4–6 cm incision is made into the central tendon of the diaphragm in the anterolateral direction, then the esophagus is displaced anteriorly (Fig. 1). A second row of vertical mattress sutures is placed through the diaphragm, stomach and esophagus and brought through the diaphragm and tied. With the esophagogastric junction displaced anteriorly and pulled into the peritoneal cavity, part of the tendinous portion of the diaphragm as well as the crura is closed behind the esophagus. This insures a snug, appropriately sized esophageal hiatus, which is now surrounded by tendinous diaphragm (Fig. 2).
Throughout the years, we have applied this method in 16 patients with hiatus hernia. It proved to be an easy addition to the classic Belsey procedure and provided a reliable, solid repair. No recurrence was observed throughout a time period of 5–8 years. This principle of anterior transposition of the esophagus may also be applied in combination with other types of anti-reflux procedures as well.

Fig. 1. Modified Belsey repair with anterior transpositioned esophagus and closure of tendinous diaphragm posterior to esophagus. The pictures show the direction of incision and forward displacement of esophageal hiatus (esophagus H, aorta B and inferior caval vein C).

Fig. 2. Closure of tendinous and muscular diaphragm posterior to Belsey repair.